

Remarks

Claims 1 and 2 are pending in the subject application. By this amendment, claim 1 has been amended. No new matter is being added. Support for the amendment can be found at least at Figure 2A. Upon entry of this amendment, claims 1 and 2 will be before the Examiner. Favorable consideration of the pending claims is respectfully requested in view of the following remarks.

Claims 1 and 2 are rejected under 35 U.S.C. §103(a) as being unpatentable over Tsau (U.S. Pat. App. No. 2002/0086492) in view of Huang *et al.* (U.S. Patent No. 5,874,355). Applicant respectfully traverses. A *prima facie* case of obviousness has not been presented. Three criteria must be met to establish *prima facie* case of obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Second, there must be a reasonable expectation of success. Finally, the prior art reference, or combination of references, must teach or suggest all the claim limitations. *See In re Dow Chemical Co.* 5 USPQ2d 1529, 1531 (Fed. Cir. 1988).

The Office Action at page 3 states that "Applicant argues that Tsau only discloses the titanium nitride barrier layer being deposited under the first metal layer, and the reference does not teach depositing the barrier layer on top of the first metal layer. This argument is not found persuasive because the reference teaches forming a TiN barrier layer on top of the first metal layer and under the second metal layer (paragraph 29). Thus, Tsau recites the relationship between the metal layer and titanium nitride layer as claimed by the applicant." However, Applicant respectfully asserts that this is an incorrect characterization of the relationship between the metal layer and the titanium nitride layer as claimed in subject claim 1. Claim 1 recites "forming a pattern on the TiN layer and making a capacitor part and a contact hole part using the pattern, the capacitor part comprising some portion of the metal layer and the TiN layer, the contact hole part comprising another portion of the metal layer and the TiN layer; forming an insulating layer with a predetermined thickness over the substrate including the capacitor part and the contact hole part;" (underline added). Tsau does not teach such a relationship. Rather, Tsau teaches forming an insulating layer 602 on the first metal layer 502 and then forming a second metal layer where a barrier metal such as titanium nitride can be formed beneath the copper/copper alloy metal layer such that the insulating layer 602 forms the insulator portion of the MIM capacitor (*see* paragraphs [0025], [0026], [0028], and [0029]). The titanium nitride barrier layer of Tsau is not a component of a

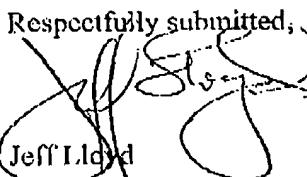
capacitor, part as claimed in subject claim 1. Instead, this titanium nitride barrier layer is a component of an upper plate of a capacitor. Therefore, Tsau does not teach or suggest all of the claim limitations recited in claim 1. Furthermore, if the upper plate of the capacitor in Tsau was replaced with tungsten, there would be no titanium nitride layer over the first metal layer and under the second metal layer because there would be no need for a barrier layer for the copper of the second metal layer. Moreover, claim 1 has been amended to further clarify that a titanium nitride layer is deposited directly on the metal layer. Because all elements of pending claim 1 are not suggested by Tsau, Tsau does not render claim 1 obvious. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the §103(a) rejection of claims 1 and 2.

In view of the foregoing remarks and amendments to the claims, Applicant believes that the currently pending claims are in condition for allowance, and such action is respectfully requested.

The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16 or 1.17 as required by this paper to Deposit Account 19-0065.

The applicant invites the Examiner to call the undersigned if clarification is needed on any of this response, or if the Examiner believes a telephonic interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,



Jeff Lloyd
Patent Attorney

Registration No. 35,589

Phone No.: 352-375-8100

Fax No.: 352-372-5800

Address: Saliwanchik, Lloyd & Saliwanchik
A Professional Association
P.O. Box 142950
Gainesville, FL 32614-2950

JL/sjk

Attachments: Request for Continued Examination including Petition and Fee for Extension of Time.